PRIME Display Matrix Configuration User Guide Version 5.1

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*See the separate document on creating EDIDs: GPU Render EDID Guide.pdf



PREREQUISITES

Choosing Correct Cables: DisplayPort

On each HX/MX Display Matrix PRIME system is a NVIDIA Quadro P5000 with 4 DisplayPort connectors. These DisplayPort GPU outputs will be powering the Display Matrix. It is important to note that all DisplayPort cables support the same infrastructure. However, there is a difference in cable quality. To ensure the highest quality cable is used, it is recommended purchasing a DisplayPort certified cable. Cables not certified are subject to poor video quality or loss of video output.

More information about choosing correct DisplayPort cables can be found here.

Additionally, DisplayPort certified cables can be found here.

Choosing Correct Cables: HDMI

Some clients may choose to convert their DisplayPort signal to HDMI. In these instances it is important to purchase the proper HDMI cable as well. However, unlike DisplayPort cables, not all HDMI cables support the same specifications.

For video wall solutions it is recommended purchasing a cable that supports a minimum 4K at 60Hz. These specifications can be delivered with a Premium High Speed HDMI Cable. More information on the Premium High Speed HDMI cable can be found <u>here.</u>

The purchase of the Ultra High Speed HDMI cable is also available for clients who wish to ensure they are using the highest quality cable. More information can be found <u>here.</u>

Premium and Ultra High Speed HDMI certified cables and can be found here.

Choosing Monitors That Fit Your Solution

Verify that the monitors in your configuration natively support the Refresh Rate intended to be used in the Display Matrix solution. Mismatching Refresh Rates will result in stuttering video.

What About HDR?

HDR is supported with NVIDIA Quadro P5000, and as stated above, all DisplayPort cables support the same infrastructure. So once again it is important to purchase a DisplayPort certified cable.

The same caution will need to be taken when purchasing HDMI cables for a HDR solution. The minimum recommended cable continues to be the Premium High Speed HDMI Cable.



CONFIGURING THE DISPLAY MATRIX

🕈 Playout Configuration				
	Video Channels 💽 Add Out	put 🕶 🔟	Add Input 💌	
Video Channels	Channel		🔽 Output 1	×
Sclip Players	Device	GPU		•
📸 Clip Recorders	Туре	Video Out		-
Playlists	Connector	Video M	Ionitor 1	•
	Name	Output 1		
	Video Standard	2160p 59.	94 Hz	•
	Video Shape	Unshaped		Ŧ
	Downstream Input	None		•
	Audio Mode	System Au	udio	•
	Audio Channels	2		•
	Genlock Source			-
	Genlock Timing (H/V)	0	n O	A V
	Antialiasing	Disabled		•
	Preview	No Preview	N	•
	Matrox Firmware Current	2 In / 6 Out		

1) PRIME Playout Configuration Needs To Be Setup Initially As Shown Below

Please note the Video Standard resolution is nonstandard. With this Setup, it allows us to configure 1 GPU across 4 Monitors Maximum



2) Setting up the Display Matrix Mosaic

Launch Nvidia Control Panel and click on Set Up Mosaic as shown below.

🛃 NVIDIA Control Panel		
<u>File Edit Desktop Workstation Help</u>		
Ġ Back 🔻 🌍 🛛 🐔		
Select a Task - 3D Settings Adjust image settings with preview Manage 3D settings	Set Up Mosaic	Addition from multiple displays and GPUs. Bezel correction is available to create a seamless image
		E
	Create new configuration	
-Stereoscopic 3D -Set up stereoscopic 3D		Ide
Were rating for games Wideo Adjust video color sattings Adjust video image settings Adjust video image settings Workstation View system topology Change ECC state Manage GPU Utilization	Sync Capability Information GPU/ Displays Quadro P5000 1. Acer K242HNL 2. Acer K242HNL 3. Acer K242HNL 4. Acer K242HNL	Sync capability
System Information		

Click on **Create New Configuration**, that opens Nvidia Mosaic Setup Window as shown below.





💶 NVIDIA Mosaic set up					- • ×
Mosaic Displays		To	pology: 1 × 2		
1. Select topology 2. Select displays	3. Arrange displays 4.	Adjust overlap and	hazal sourcetion		
2. Select displays	5. Arrange uispiays	Aujust overlap and	Dezer correction		
Number of displays:			Configuration Name		
2 •			Mosaic setup		
Topology (rows × columns):					
1 × 2	•				
Orientation of displays:					
Landscape 🔻					
I am using <u>recommended conn</u>	ections for the selected t	opology.			
Enable Mosaic					
Selected topology:					
				Back	Next



Select Number of Displays and Topology one would like to set up along with Configuration Name.

NVIDIA Mosaic set up				- • •
Mosaic Displays	T	opology: 2 × 2		
1. Select topology 2. Select displays 3. A	rrange displays 4. Adjust overlap an	d bezel correction		
Number of displays:		Configuration Name		
4		Mosaic setup		
Topology (rows × columns):				
2 × 2	_			
1 × 4 2 × 2	-			
4×1 1×2 (Passive stereo)				
2 × 1 (Passive stereo) I am using <u>recommended connection</u>	ns for the selected topology.			
Enable Mosaic				
Selected topology:				
Selected topology:		_	_	
			<u>B</u> ack	Next

*Following example shows Number of displays: 4; Topology : 2x2



Click **Next** and Select Displays that you would like to use in this topology on the next page Refresh Rate and Resolution per display can be set here using their respective dropdowns

NVIDIA Mosaic set up			
Mosaic Displays	То	pology: 1 × 4	
Mosaic Displays 1. Select topology 2. Select displays Displays for Mosaic: (4 selected) Image: Displays Quadro P5000 Image: Displays Image: Displays Quadro P5000 Image: Displays Image: Displays	3. Arrange displays 4. Adjust overlap and	d bezel correction Refresh rate: 50.00 ⊢ ▼ Resolution per display: 1920 × 1080 1920 × 1080 1768 × 992 1680 × 1050 1660 × 1024 1600 × 900	r Mosaic with sync. e information about your display
}	0,3		Back Next



Click **Next** and move on to Arranging Displays in your Topology as shown below

NVIDIA Mosaic set up		
Mosaic Displays	Topology: 2 × 2	
1. Select topology 2. Select displays 3.	Arrange displays 4. Adjust overlap and bezel correction	
Available display sources:		
4 3 2 1 0,3 0,2 0,1 0,	0	
Topology:		
Total Resolution: 3840 × 2160 pixels		
	Back Next	Finish



Drag and Drop Displays according to tour Topology requirements and Click **Apply** and Click **Next** when Topology is applied.

NVIDIA Mosaic set up				
Mosaic Displays		Topology: 2 × 2		
1. Select topology 2. Select displays 3. A	rrange displays 4. Adjust over	lap and bezel correction		
Display arrangement for Mosaic is	complete. To enable Mosaic, click	'Apply'.		
Topology:	_			
	1	2		
	0,0	0,1		
	3	4		
	0,2	0,3		
Total Resolution: 3840 x 2160 pixels				
			Back Next	Finish





Adjust the overlap and bezel correction looking at the display monitors and click Finish.

1osaic Displays		Topology: 2 × 2	
Select topology 2. Selec	t displays 3. Arrange displays 4. Adj	iust overlap and bezel correction	
5elect how overlap/bezel co	prrection is applied		
	I vertical or horizontal edges 🔹 🔻		
Select edges for overlap/be	zel correction		
	1	2	
	0,0	0,1	
	3	4	
	0,2	0,3	
Total resolution: 3840 × 3	2160 pixels		
	ion values for selected edges:		
	Correction type	Correction value (pixels)	
Edges	Bezel Correction 🔻	0	
All Vertical	Dezer Correction +		
	Bezel Correction	0	
All Vertical			
All Vertical All horizontal		0	4
All Vertical			4
All Vertical All horizontal		0	4



Final Mosaic Setup has been applied that lists all the properties of your Topology One can Click on **Modify** and Modify the Topology to make any changes required or **Disable** the Mosaic Setup to go back to default settings.

🛃 NVIDIA Control Panel					
<u>File E</u> dit Des <u>k</u> top <u>W</u> orkstation <u>H</u> elp					
🚱 Back 👻 🚱 🚮					
Select a Task	Cot Un Macaia				×
	Set Up Mosaic				
Manage 3D settings	Mosaic technology creates a singl	e desktop from multiple displays a	nd GPUs. Bezel correction is avai	lable to create a seamless image.	
Display Change resolution					
Adjust desktop color settings Rotate display					
View HDCP status Set up digital audio	Create new configuration				
Set up multiple displays	Create new configuration				
Stereoscopic 3D Set up stereoscopic 3D					_
				Identify displays	-
Adjust video color settings Adjust video image settings	Mosaic Displays- 1			Modify Disable	
- Workstation	Topology	2 × 2			
View system topology <mark>Set up Mosaic</mark>	Refresh Rate Resolution per display	50Hz 1920 ×	1080		
Change ECC state Manage GPU Utilization	Total resolution	3840 ×	2160		
		_			
		1	2		
		0,0	0,1		
		3	4		
		0,2	0,3		
		_	_		
	Sync Capability Information				
	GPU/ Displays		Sync capability		
	Quadro P5000		1		
	1. Acer K242HYL 2. Acer K242HYL				
	3. Acer K242HYL				
	4. Acer K242HYL				
O System Information					_
					•

3) Configure EDID

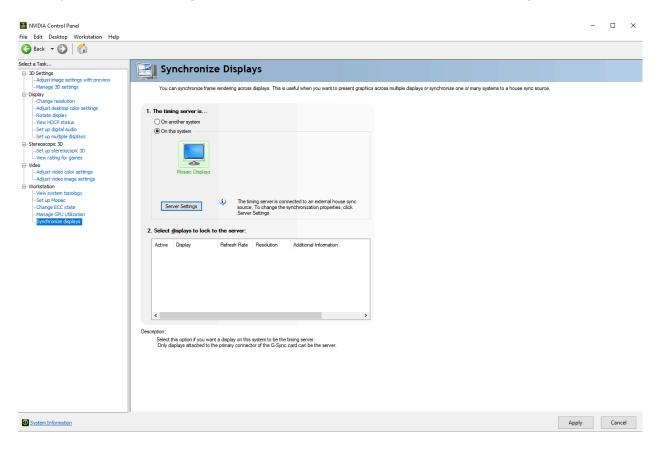
Refer to GPU Render EDID Guide



4) Set NVIDIA Quadro Sync

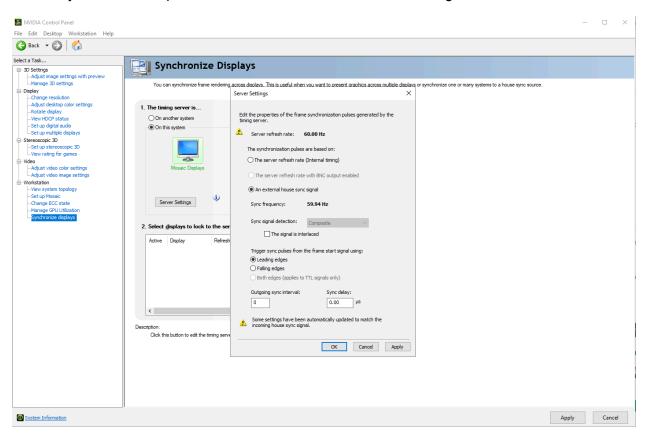
When using the optional Matrox BNC video inputs as part of the PRIME Display Matrix solution, the NVIDIA Quadro Sync must be configured. This ensures that the refresh rate of the monitor is synchronized to the refresh rate of the source video. Both the Matrox and NVIDIA cards should receive reference in, and both can take either bi-level or tri-level sync. This should be configured after the NVIDIA Mosaic.

Open NVIDIA Control Panel and select Synchronize displays. Notice the configured Mosaic is the only option in this configuration. Choose the Mosaic and click Server Settings.



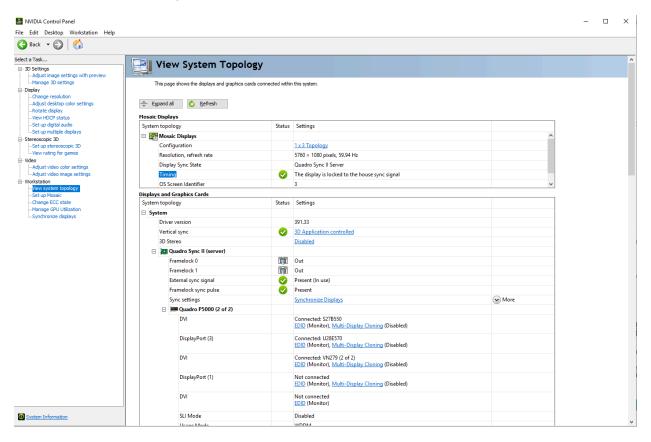


Set the synchronization pulses to be based on an external house signal.





Once the changes have been applied refer to View System Topology. Confirm that Mosaic Displays Timer is locked to house sync signal, that External Sync Signal is Present (In Use), and that the Framelock Sync Pulse is Present.



5) Double check Windows display settings

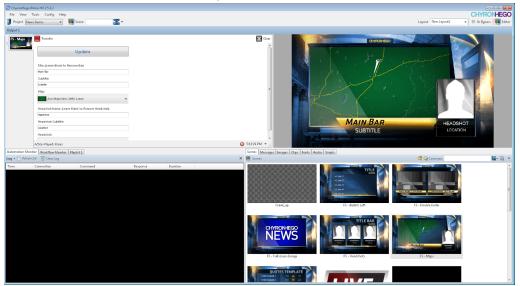
It's important to make sure that the Windows Display settings are set properly. Right-click on the desktop and navigate to the Display Settings. Ensure that Scale and Layout as well as Display Resolution are using the recommended settings.





6) Play graphics

Launch Prime Application and Play any Scene on the Output channel, it should display the Graphic across all those 4 Display devices





ABOUT US

Chyron is ushering in the next generation of storytelling in the digital age. Founded in 1966, the company pioneered broadcast titling and graphics systems. With a strong foundation built on over 50 years of innovation and efficiency, the name Chyron is synonymous with broadcast graphics. Chyron continues that legacy as a global leader focused on customer-centric broadcast solutions. Today, the company offers production professionals the industry's most comprehensive software portfolio for designing, sharing, and playing live graphics to air with ease. Chyron products are increasingly deployed to empower OTA & OTT workflows and deliver richer, more immersive experiences for audiences and sports fans in the arena, at home, or on the go.

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